

Table 5: Care Home intervention/exposure studies outcomes (n=16 studies)

Study ID (Author, year)	Covid effect on residents	Effect on death	Comment
Belmin 2020	Five staff who self-confined had confirmed COVID-19, compared with 30 569 residents (4.4%) in the national survey	Five residents (0.4%) in the self-confined NH died of COVID-19, compared with 12,516 (1.8%) in the national survey (odds ratio, 0.22; 95% CI, 0.09-0.53; P < .001).	facilities had diverse legal statuses and were located in a variety of geographic areas, including areas where there was a high overall mortality rate from
Brown 2020	The incidence in high crowding index homes was 9.7% vs 4.5% in low crowding index homes (P < .001),	COVID-19 mortality was 2.7% in high crowding vs 1.3% in low crowding homes (P < .001).	Simulations suggested converting all 4-bed rooms to 2-bed would avert 19% of COVID-19 cases and 18% of deaths. After adjustment for a regional, nursing home, and resident covariates, the crowding index remained associated with increased infection, RR=1.73 (95% CI, 1.10-2.72) and mortality, (RR=1.69 (95% CI, 0.99-2.87).
Bui 2020	After adjusting for county-level COVID-19 incidence and the number of facility residents, odds of a COVID-19 outbreak were significantly lower in higher-quality nursing homes, based on the star rating.		Compared with 1-star-rated nursing homes, the odds of a COVID-19 outbreak were 87% lower among 2 to 3-star-rated nursing homes, aOR = 0.13 (95% CI = 0.03–0.54) and 94% lower among 4- to 5-star-rated nursing homes, aOR = 0.06; (0.003–0.39); specifically, the odds of a COVID-19 outbreak among 1-star-rated nursing homes were approximately seven times higher than among 2- to 3-star-rated facilities and approximately 17 times higher than among 4- to 5-star-rated facilities after controlling for the number of residents and county-level incidence.
Collison 2020	Of those residents negative, repeat testing a week later 12 were SARS-CoV-2 positive. Ten (83%) were on the memory-care unit. Two from the negative-exposed converted to positive. The 29 remaining negative-exposed were considered negative-cleared		Two floors designated COVID-19–positive (red) where sharing rooms was permitted. One floor was designated negative-exposed, and residents were placed in their own room. The memory floor was separated into 2 units by storm doors dividing positive and negative-exposed cohorts.
Cronin 2020		Higher-quality NHs experienced fewer deaths from COVID-19;	NHs with a 5-star inspection rating have a COVID-19 death rate 24% lower than those with a 1-star inspection rating. High-quality NHs were not effective in preventing the spread of COVID-19 among their staff, these homes were effective at preventing the virus' spread among their residents – 5-star homes saw roughly 23% fewer cases than 1-star homes.
Das Gupta 2021		Higher quality of nursing homes increased the possibility of belonging in the excess zero groups, not at risk of death.	The association diminished over time showing a reduced role of the quality as the pandemic progressed. Suggests that higher-quality nursing homes were better prepared to handle the pandemic in the earlier stages. A Multivariable analysis support the central but negative role of staff shortages, other things remaining equal. Results

			indicated that the adverse role of staff shortages did not change over time but continued to be an important factor.
Figueroa 2020	High-performing NHs were less likely to have had more than 30 COVID-19 cases than low-performing facilities		High-performing NHs had a lower number of certified beds. After adjustment, NHs with high ratings on nurse staffing were less likely to have more than 30 COVID-19 cases vs facilities with 11 to 30 and vs facilities with 10 or fewer cases than were low-performing NHs, OR, 0.82 (95% CI, 0.70-0.95; P = .01).
Gorges 2020	Larger facilities, non-profit ownership, a metropolitan county, and more county-level cases were associated with a higher probability of having any cases. Not being part of a chain and a higher share of Medicaid residents was associated with a higher probability of an outbreak.	The number of deaths was 4.1 in quintiles of nursing hours 1 and 2 and 2.0 in quintiles 4 and 5	CMS data required reporting beginning May 8, and facilities had the option to report cases/deaths going back to January 1. The data on total cases/deaths represents an undercount.
Harrington 2020	The odds that nursing homes with COVID-19 residents had low RN hours (less than 0.75 HPRD) was two times greater than homes without COVID-19 residents.		Nursing homes with COVID-19 residents were significantly associated with lower CMS nurse staffing and RN ratings than nursing homes without COVID-19 residents. the logistic regression model that took into consideration the effects of health deficiencies, bed size, and ownership, the total nurse staffing hours became nonsignificant.
Ibrahim 2021	COVID-19 was more likely in larger metropolitan facilities, privately owned by large chains, with a past history of regulatory non-compliance, located close to high-risk industry	The highest case-fatality rates were observed in homes owned by not-for-profit providers operating many facilities, located close to high-risk industries.	One or more resident cases of COVID-19 in 9.7% of nursing homes (74/766).
Krone 2020	The majority of COVID-19 cases occurred in buildings B (66/98) and C (13/24), only 1 of 38 residents living in building A tested positive for SARS-CoV-2.		Causality cannot be proven as several interventions were employed.
Meis-Pinheiro 2021	The number of places in the facilities ranged from 15 to 300 and did not show a significant correlation with the incidence of COVID-19.		The density of the institution showed no correlation with the incidence of the disease suggesting homes organized based on living units were not prone to higher incidence when compared to nursing homes where common spaces were shared by the entire population.
Stall 2020	COVID-19 outbreaks were associated with the incidence of COVID-19 in the surrounding region, adj OR 1.91 (95% CI 1.19–3.05), the number of residents, adjOR 1.3 (1.18–1.61), and older design standards of the home, adjOR 1.55 (1.01–2.38), but not profit status.	There were 190 (30.5%) outbreaks in LTC homes, involving 5,218 residents resulting in 1,452 deaths, CFR of 27.8%. Among homes with an outbreak, on average 6.5% of all residents in for-profit homes died of COVID-19, whereas 5.5% and 1.7% of residents in nonprofit and municipal homes died of COVID-19, respectively	For-profit status was associated with both the extent of an outbreak in an LTC home (adjusted risk ratio [RR] 1.96, 95% CI 1.26–3.05) and the number of resident deaths (adjusted RR 1.78, 95% CI 1.03–3.07)
Tarteret 2020	188 of 375 (50.1%) residents were classified as confirmed COVID-19 cases.	COVID-19 case fatality rates: 3 of 35 [8.6%] in Home A vs. 12 of 59 [20.3%] in Home B vs 40 of 92 [42.5%]	Mortality in COVID-19 patients decreased if they had a daily clinical examination, OR: 0.09 (95% CI, 0.03–0.35, p = 0.01), or vital signs

		in Home C	measurement per day, OR: 0.06 (0.01–0.30, p = 0.001).
Wang 2021	NH reporting cases had a higher proportion of for-profit status (p < .01), larger facility size (121 or more beds, p < .001) and the average occupancy rate was higher (p < .01), while total nurse staffing HPRD was lower (p < .01). A greater prevalence of 4–5 star ratings was observed among nursing homes reporting no cases (p < .05).	As of July 26, nursing homes reporting COVID-19 residents deaths had a greater proportion of larger facilities (p < .001), had more than one infection prevention and control deficiency (p < .01) and had a lower five-star rating (p < .05). Total nurse staffing HPRD was found to be higher in nursing homes reporting no COVID-19 deaths (p < .05).	Compared to NH with >120 beds, those with < 60 beds (ORs = 0.13–0.20); 61–120 beds (ORs = 0.27–0.53), were less likely to have cases. Higher average occupancy increased cases (ORs = 21.24–31.19). Facilities with <60 beds were less likely to report resident COVID-19 deaths. Facilities cited for IPC deficiency >once were more likely to report deaths in all homes (OR = 1.62, 95% CI [1.11, 2.38], p < .05).
Zimmerman 2021	The median incidence of COVID-19 in Green House/small NHs was significantly less than that in NHs ≥50 beds: 0 versus 2.19 cases per 100 resident years (eg, 100 residents each followed for 1 year).	In terms of COVID-19 mortality, the median rates per 100 positive residents were 0 (Green House/small NHs), 10 (<50 beds), and 12.5 (≥50 beds).	Rates for all outcomes were significantly lower in Green House/small NHs than in traditional NHs that had <50 beds and ≥50 beds (log-rank test P < .025 for all comparisons). Notably, residents in Green House homes receive significantly more hours per day of care from certified nursing assistants than do residents in traditional nursing homes.

Key: minimum hours per resident day (HPRD)

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